

## When we change our clocks

Most of the **United States** begins Daylight Saving Time at 2:00 a.m. on the second Sunday in March (spring forward) and reverts to standard time on the first Sunday in November (fall back). In the U.S., each time zone switches at a different time.

In the **European Union**, Summer Time begins and ends at 1:00 a.m. Universal Time (Greenwich Mean Time). It begins the last Sunday in March and ends the last Sunday in October. In the EU, all time zones change at the same moment.

## Spring forward, Fall back

During DST, clocks are turned forward an hour, effectively moving an hour of daylight from the morning to the evening.

		United States		European Union	
Year	DST Begins at 2 a.m.	DST Ends at 2 a.m.	Summertime period begins at 1 a.m. UT	Summertime period ends at 1 a.m. UT	
2004	April 4	October 31	March 28	October 31	
2005	April 3	October 30	March 27	October 30	
2006	April 2	October 29	March 26	October 29	
2007	March 11	November 4	March 25	October 28	
2008	March 9	November 2	March 30	October 26	
2009	March 8	November 1	March 29	October 25	
2010	March 14	November 7	March 28	October 31	
2011	March 13	November 6	March 27	October 30	

## Spelling and grammar

The official spelling is Daylight Saving Time, **not** Daylight Saving**S** Time.

Saving is used here as a verbal adjective (a participle). It modifies time and tells us more about its nature; namely, that it is characterized by the activity of saving daylight. It is a saving daylight kind of time. Because of this, it would be more accurate to refer to DST as daylight-saving time. Similar examples would be a mind-expanding book or a man-eating tiger. Saving is used in the same way as saving a ball game, rather than as a savings account.

Nevertheless, many people feel the word *savings* (with an 's') flows more mellifluously off the tongue. *Daylight Savings Time* is also in common usage, and can be found in dictionaries.

Adding to the confusion is that the phrase *Daylight Saving Time* is inaccurate, since no daylight is actually saved. *Daylight Shifting Time* would be better, and *Daylight Time Shifting* more accurate, but neither is politically desirable.

## When in the morning?

In the U.S., clocks change at 2:00 a.m. local time. In spring, clocks spring forward from 1:59 a.m. to 3:00 a.m.; in fall, clocks fall back from 1:59 a.m. to 1:00 a.m. In the EU, clocks change at 1:00 a.m. Universal Time. In spring, clocks spring forward from 12:59 a.m. to 2:00 a.m.; in fall, clocks fall back from 1:59 a.m. to 1:00 a.m.

In the U.S., restaurants and bars have various closing policies. In many states, liquor cannot be served after 2:00 a.m. But at 2:00 a.m. in the fall, the time switches back one hour. So, can they serve alcohol for that additional hour in October? The official answer is that the bars do not stop serving liquor at 2:00 a.m., but actually at 1:59 a.m. So, they have already stopped serving when the time changes from Daylight Saving Time into Standard Time. In practice, however, many establishments stay open an extra hour in the fall.

In the U.S., 2:00 a.m. was originally chosen as the changeover time because it was practical and minimized disruption. Most people were at home and this was the time when the fewest trains were running. It is late enough to minimally affect bars and restaurants, and it prevents the day from switching to yesterday, which would be confusing. It is early enough that the entire continental U.S. switches by daybreak, and the changeover occurs before most early shift workers and early churchgoers are affected.

## Rationale and original idea

The main purpose of Daylight Saving Time (called "Summer Time" in many places in the world) is to make better use of daylight. We change our clocks during the summer months to move an hour of daylight from the morning to the evening. Countries have different change dates.

If you live near the equator, day and night are nearly the same length (12 hours). But elsewhere on Earth, there is much more daylight in the summer than in the winter. The closer you live to the North or South Pole, the longer the period of daylight in the summer. Thus, Daylight Saving Time (Summer Time) is usually not helpful in the tropics, and countries near the equator generally do not change their clocks.

A poll conducted by the U.S. Department of Transportation indicated that Americans liked Daylight Saving Time because "there is more light in the evenings / can do more in the evenings." A 1976 survey of 2.7 million citizens in New South Wales, Australia, found 68% liked daylight saving. Indeed, some say that the primary reason that Daylight Saving Time is a part of many societies is simply because people like to enjoy long summer evenings, and that reasons such as energy conservation are merely rationalizations.

According to some sources, DST saves energy. Studies done by the U.S. Department of Transportation in 1975 showed that Daylight Saving Time trims the entire country's electricity usage by a small but significant amount, about one percent each day, because less electricity is used for lighting and appliances. Similarly, in New Zealand, power companies have found that power usage decreases 3.5 percent when daylight saving starts. In the first week, peak evening consumption commonly drops around five percent.

The rationale behind the 1975 study of DST-related energy savings was that energy use and the demand for electricity for lighting homes is directly related to the times when people go to bed at night and rise in the morning. In the average home, 25 percent of electricity was used for lighting and small appliances, such as TVs and stereos. A good percentage of energy consumed by lighting and appliances occurred in the evening when

families were home. By moving the clock ahead one hour, the amount of electricity consumed each day decreased.

## Some U.S. areas

Although a 1976 report by the National Bureau of Standards disputed the 1975 U.S. Department of Transportation study, and found that DST-related energy savings were insignificant, the DOT study continued to influence decisions about Daylight Saving Time.

The argument in favor of saving energy swayed Indiana, where until 2005, only about 16 percent of counties observed Daylight Saving Time. Based on the DOT study, advocates of Indiana DST estimated that the state's residents would save over \$7 million in electricity costs each year. Now that Indiana has made the switch, however, researchers have found the opposite to be the case. Scientists from the University of California, Santa Barbara, compared energy usage over the course of three years in Indiana counties that switched from year-round Standard Time to DST. They found that Indianans actually spent \$8.6 million more each year because of Daylight Saving Time, and increased emissions came with a social cost of between \$1.6 million and \$5.3 million per year. Commentators have theorized that the energy jump is due to the increased prevalence of home air conditioning over the past 40 years, in that more daylight toward the end of a summer's day means that people are more likely to use their air conditioners when they come home from work.

However, the Indiana research findings don't necessarily apply elsewhere. In cooler climates, for example, energy savings may well occur.

For the U.S. and its territories, Daylight Saving Time is **NOT** observed in Hawaii, American Samoa, Guam, Puerto Rico, the Virgin Islands, the Commonwealth of Northern Mariana Islands, and Arizona. The Navajo Nation participates in the Daylight Saving Time policy, even in Arizona, due to its large size and location in three states.

## A safety reminder

Many fire departments encourage people to change the batteries in their smoke detectors when they change their clocks because Daylight Saving Time provides a convenient reminder. "A working smoke detector more than doubles a person's chances of surviving a home fire," says William McNabb of the Troy Fire Department in Michigan. More than 90 percent of homes in the United States have smoke detectors, but one-third are estimated to have dead or missing batteries.

In addition, some argue that there is a public health benefit to Daylight Saving Time, as it decreases traffic accidents. Several studies in the U.S. and Great Britain have found that the DST daylight shift reduces net traffic accidents and fatalities by close to one percent. An increase in accidents in the dark mornings is more than offset by the evening decrease in accidents.

However, recent research indicates that pedestrian fatalities from cars soar at 6:00 p.m. during the weeks after clocks are set back in the fall. Walkers are three times as likely to be hit and killed by cars right after the switch than in the month before DST ends. Researchers from Carnegie Mellon University, who found a 186 percent jump in the risk of being killed by a car for every mile walked, speculate that drivers go through an adjustment period when dusk arrives earlier. Although the risk drops in the morning, because there are fewer pedestrians at 6:00 a.m., the lives saved in the morning don't offset those lost in the

evening.

This research corroborates a 2001 study by researchers at the University of Michigan, which found that 65 pedestrians were killed by car crashes in the week before DST ended, and 227 pedestrians were killed in the week following the end of DST. There may also be an economic benefit to DST, as daylight evening hours encourage people to go out and shop, potentially spurring economic growth.

## Idea of Daylight Saving Time

The idea of daylight saving was first conceived by Benjamin Franklin during his sojourn as an American delegate in Paris in 1784, in an essay, "An Economical Project." Some of Franklin's friends, inventors of a new kind of oil lamp, were so taken by the scheme that they continued corresponding with Franklin even after he returned to America.

The idea was first advocated seriously by London builder William Willett (1857-1915) in the pamphlet, "[Waste of Daylight](#)" (1907), that proposed advancing clocks 20 minutes on each of four Sundays in April, and retarding them by the same amount on four Sundays in September.

## Early British laws and lax observance

About one year after Willett began to advocate daylight saving (he spent a fortune lobbying), he attracted the attention of the authorities. Robert Pearce - later Sir Robert Pearce - introduced a bill in the House of Commons to make it compulsory to adjust the clocks. The bill was drafted in 1909 and introduced in Parliament several times, but it met with ridicule and opposition, especially from farming interests. Generally lampooned at the time, Willett died on March 4, 1915.

Following Germany's lead, Britain passed an act on May 17, 1916, and Willett's scheme of adding 80 minutes, in four separate movements was put in operation on the following Sunday, May 21, 1916. Benjamin Franklin first suggested Daylight Saving Time in 1784, but it was not until World War I, in 1916, when it was adopted by several counties in Europe that initially rejected the idea.

After World War I, Parliament passed several acts relating to Summer Time. In 1925, a law was enacted that Summer Time should begin on the day following the third Saturday in April (or one week earlier if that day was Easter Day). The date for closing of Summer Time was fixed for the day after the first Saturday in October.

The energy saving benefits of Summer Time were recognized during World War II, when clocks in Britain were put two hours ahead of GMT during the summer. This became known as Double Summer Time. During the war, clocks remained one hour ahead of GMT throughout the winter.

It is difficult to predict what will happen with Daylight Saving Time in the future. Many countries change the date and the desire to change the time due to special events or conditions. The United States, Canada and some other countries extended DST in 2007. The new start date is the second Sunday in March (previously the first Sunday in April) through to the first Sunday in November (previously the last Sunday in October).

Sources: <http://www.webexhibits.org/daylightsaving/index.html>  
<http://www.timeanddate.com/time/aboutdst.html>